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AUTHOR Rieley, James
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ABSTRACT

Scenario planning can help institutions change the mental models used in planning to achieve a focus on the long-term future, rather than on the immediate future. While institutional survival depends upon the ability to detect and adapt to critical changes in the environment, all institutions face a wide range of potential future scenarios. By interviewing stakeholders regarding their perceptions of what the future holds in store, colleges can inform their selection of one or two potential scenarios to explore. Responses can be sorted into four quadrants, composed of two common characteristics and their opposites, with scenarios being developed for each. Because institutions tend to believe that their future will be an extension of their past, scenario planning can help examine the large-scale forces that may push the future into different directions. These driving forces are related to demographics and lifestyles, economics, politics, environmental factors, and technological issues. Once these forces have been identified, institutions should identify the forces that can be predicted and those that are uncertain and largely controlled by mental models. An effective tool for examining mental models is the systems map, using arrows to define the relationships between elemental behaviors. For each scenario, a scenario matrix should be used to develop a valid compilation of scenario strategies. A collective matrix is then built, which reflects the collective vision of the group members. Contains 17 references. (HAA)

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SCENARIO PLANNING IN HIGHER EDUCATION

By

James Rieley
Director, Center for Continuing Quality Improvement
Milwaukee Area Technical College
Milwaukee, WI

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presenter biography

James B. Rieley directs The Center for Continuous Quality Improvement at Milwaukee Area Technical College. Through the Office of the President, he directs the internal quality improvement process at the college, has developed and facilitates the Systems Thinking/Organizational Learning efforts, and is the facilitator and architect of the strategic planning process. In conjunction with the WorkForce Development Institute of MATC, he consults with business and industry, government, and educational institutions who have identified the importance of becoming more effective in meeting the needs of their customers.

Rieley, who holds a B.S. degree in business administration, was the president of a successful plastics manufacturing company for over 20 years. After selling his company in 1987, he began to work with organizations in the area of innovation and business organization. In 1990 he accepted an offer to come to MATC to develop the concept that became The Center for Continuous Quality Improvement.

He has written extensively on the subject of quality, having been published in Quality Progress, The System Thinker, National Productivity Review, The Business Journal, Corporate Reports Wisconsin, On The Horizon, and other media, as well as being the author of a research report for GOAL/QPC on Strategic Planning for education titled Closing the Loop, and co-author of an implementation workbook on Institutional Effectiveness. As a result of his work, Rieley was recently nominated for the national Shingo Prize for Excellence in Research.

Rieley, has presented programs and papers at the national GOAL/QPC conferences, the Community College Consortium Summer Institutes, the West Virginia Community College convention, the Georgia Technical College system, the Fox Valley Quality Conference, the International Forum on Quality in Higher Education, the Systems Thinking in Action conferences, the American Association of Higher Education National Conferences, the Sinclair Community College Quality Institute, and the Quality Symposium. Most recently, Rieley was invited to participate in the White House Conference on Corporate Citizenship. He has done facilitation/consulting in strategic planning for the French Ministry of Education, the University of the Virgin Islands, American Association of Higher Education's Coordnet Group, Blackhawk Technical College, the University of Wisconsin System, Chippewa Valley Technical College, and Upper Iowa University.

Rieley is the past President of Milwaukee:First in Quality, a network service of the Metropolitan Milwaukee Association of Commerce; a member of the National Steering Council of International Forum of Quality in Higher Education (Q/HE); on the advisory group to Quality Coordnet of American Association of Higher Education (AAHE); is the midwest learning coordinator for Pegasus-Systems Thinking, and the founder of the Southeast Wisconsin Organizational Learning Consortium (SEWOLC).

Scenario Planning in Higher Education

James B. Rieley
The Center for Continuous Quality Improvement

Planning for the future is something that all institutions believe that they do. We plan on how many students we will have next semester or next year. We plan which classes to offer next semester or next year. We plan what our budgets will be for the next year. Sometimes, we plan on what our technology needs will be for the next two years. This is planning for the literal future, but not for the figurative future. The future that we need to look at is the future that will be today in 10, 20, or 30 years.

Higher education is going through massive changes. Our customers are changing, our competition is changing, our needs are changing, and our resource availability is changing. The world taking shape is not only new, but new in entirely different ways (Barnet, 1990). If we are to remain viable, or hopefully more effective over time, we must begin to examine how we do our planning.

When we do our planning for the "immediate future," the future of one or two years away, we are much like someone who is standing in the woods against a tree with his or her nose touching the bark. We are able to focus our vision on the crevices on the bark, perhaps even on the small creatures that inhabit the tree lining. Consequently, we begin to believe that our "world" is the tree bark and the small creatures. However, even trying to focus at this distance requires that we force our eyes to clearly see what is in front of us. Unfortunately, being this close to the tree eliminates our ability to discern how big in diameter the tree is, or how tall the tree is, or how many trees are in the forest. We may not even be able to tell if the tree is diseased and might fall on us at a later date. The mental models we have of our environment become locked into place by our self-enforced myopic position.

Planning for the immediate runs the same risks. When we look at the future of one or two years, we will not be able to focus on the bigger picture. We need to "step back from the tree" and focus on the forest as a whole. Scenario planning gives us that ability. Scenario planning is not about doing planning, but is the vehicle in which we can begin to change the mental models we have of our worlds (Duncan, 1990). Our institutional survival "depends on the ability to detect and adapt to critical changes in the environment" (de Geus, 1990). We need to change our mental models of what is and what is not; we need to learn how to better plan for the future; we need to better understand what our futures might be. This paper will put forth a methodology for doing effective scenario planning in a higher educational environment.

Scenarios in Higher Education

In higher education, we are faced with many potential future scenarios (see figure 1).

enrollments drop	enrollments increase
decreased competition	increased competition
economic turndown	economic upturn
conflicts within our communities	harmony within our communities
conflicts with accrediting agencies	long-term accreditation
facility limitations	unused facility capacity
resource availability shrinkage	surplus funding availability
anti-education legislation	federal support for education
technology advances	increase in need for basic skills
reduced need for degreed	increased demand for employees degrees

figure 1

There is no right or wrong scenario; there are no good or bad scenarios; there are only potential futures facing our institutions. Selecting the scenarios to look at can be a hit-or-miss process. Few institutions have the resources that would enable them to look at all the potential futures, therefore, selecting one or two to examine becomes a matter of practicality. How to make the selection is the question. The method that works well is by interviewing institutional stakeholders.

traditional delivery
• increase in need for basic skills
• lower entrance skills expected
• facility expenses increase
• escalating benefit costs
• classes at business sites
• classes held at shopping centers
• increase in partnerships
• higher entrance skills expected
centralized
site-based
• increase in operating expenses
• labor contract conflicts
• lack of organizational alignment
• difficulty in "keeping up"
• no central campus facility
• faculty on call
• heavy utilization of ITFS, internet
• foreign students
• higher entrance skills required
alternative delivery

figure 2

By asking the question, "what do you think the future holds in store for the institution?," a scenario planning team can begin to sort out what futures may be important to look at. By sorting the responses into groups, the team can identify some common characteristics. By using orthogonal axes (see figure 2), we can

develop a method of completing the selection process. After selecting two characteristics that are identified in the interview process, the scenario team determines the opposite characteristics and applies all four to the axes. With the axes completed, the scenario team then begins to develop scenarios for each of the four quadrants.

A key consideration in developing scenarios is the richness of the conversation. There are significant obstacles to this process. They include; overconfidence and intellectual arrogance, and anchoring and availability bias (Clemmons, 1995). As humans, we tend to overestimate our knowledge and level of understanding. Overconfidence may make us believe that, because we have been successful in the past, we will be able to lead our organizations successfully into an unknown future. Additionally, we may believe that we know exactly what the future will be. We believe that the future will be basically an extension of the past, and consequently, we anchor our beliefs in what we know now.

Through doing scenario planning, we are not trying to pinpoint specific future events, but to look at the large-scale forces that will be pushing the future into different directions (Wilkinson, 1996). It is these forces that contribute to the relational changes that affect our institutions.

Most current planning follows maps that we have that are two dimensional, like road maps or terrain maps (Schoemaker, 1995). Making geographic maps are an honored art and science, so is the making of institutional maps. However, both of them provide a distorted view of the environment. Geographic maps show the elevations, the distances between places, and the topography. Institutional maps can show the number of students who enroll, the number of students who complete, the number of students in classes, the trends of business and industry, and the various ways in which we deliver education. However, neither map shows the various uncertainties that relate to the reality that the maps are supposed to reflect.

Geographic maps do not include various elements, such as weather, landslides, animals, and other people that might restrict one's ability to move across the territory shown on the map. Institutional maps do not traditionally include values, legislative directions and impacts, institutional climate, relationships between departments, or levels of understanding and buy-in. These are all considered to be uncertainties.

When evaluating relationships between uncertainties, we need to check for internal consistency and plausibility; for example, high visibility and heavy snowdrifts are an implausible combination. By examining the driving forces, we begin to surface the uncertainties that will have a major impact on our ability to understand the potential futures we face.

Driving Forces

The forces to be examined include social, economic, political, environmental, and technological. It is these forces that will result in the future we will find ourselves in. We need to look at the context of these forces.

Scenario Driving Forces

Social Dynamic Forces	Demographics Values Lifestyle Customer demands
Economic Issue Forces	Microeconomic trends Macroeconomic trends
Political Issue Forces	Legislation Regulatory direction Accreditation directions
Environmental Forces	Ecological movement Costs of recycling
Technological Issue Forces	Innovation Technology availability Indirect technology impacts

figure 3

By beginning to examine these forces, we can begin to paint a picture of the things that will be affecting the relationships that impact our ability to be effective over time. Once the driving forces are identified, it is important to begin to identify the things that can be predetermined. Predetermined forces are ones that we can identify through direct or indirect relationships. For example, it is relatively easy to predetermine how many students will be attending high school in a given area by looking at how many students there are in the pipeline to high school, i.e.: how many students are in the K-8 system in that area. Although the two numbers in all probability will not be the same, there will be a correlation. Another example might include the number of students who attend graduate programs. To find this number, we can start be determining the correlation between the number of students in baccalaureate programs at the institution.

There will potentially be quite a few driving forces whose outcomes can be predetermined. Once these are identified, we are left with what are called "uncertainties." It is the uncertainties that we need to work to discover. It is the uncertainties that are largely controlled by our mental models.

In scenario planning, we are not trying to predict the future, we are trying to understand the potential futures that we might encounter. This requires being

open to these potentials, being open to challenging our mental models of what the future might be.

Mental Models

To better examine our mental models, an effective tool that can be developed is a systems map. In a systems map, the relationships between various elemental behaviors are identified, as well as the relationships between them. The tool looks like a very chaotic spider web, with arrows going from behavior to behavior. The arrows help define the relationship between the various behaviors by showing the direction of effect, as well as the impact of that direction (see figure 4).

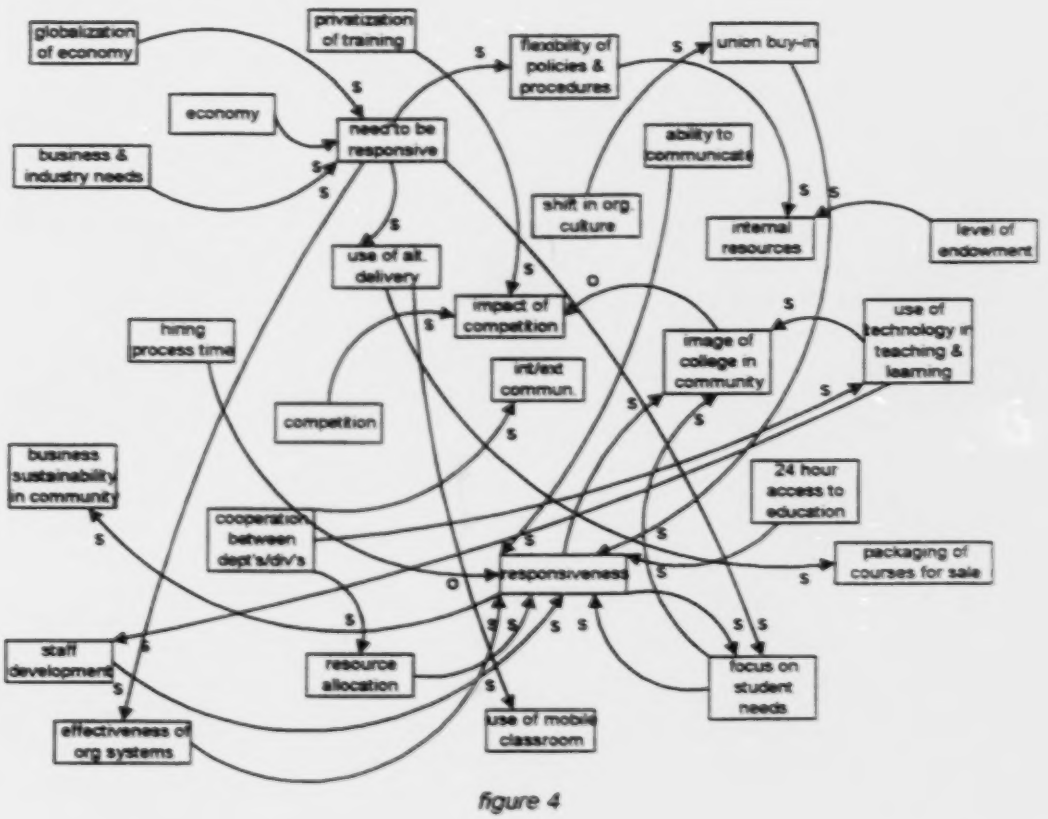

figure 4

In figure 4, the relationships between behaviors from a case study are shown. Keys to look for are the arrow directions and the letter near each arrow head. The arrow shows which behavior affects which other behaviors. The letter, either an "S" or an "O," shows the direction of the impact of the relationship. If the letter is an "S," the meaning is that, as one behavior builds or grows, the other (recipient behavior) builds or grows as well. If the letter is an "O," the

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meaning is that, as one behavior builds or grows, the other (recipient behavior) will decline or shrink. By examining the completed systems map, we can determine which behaviors will have the most impact of the system, therefore, helping to better understand the future dynamics of the scenario being looked at.

Using a systems map causes us to reexamine our mental models of the dynamic relationships at play in our organizations, and in the case of scenario planning, causes us to examine our mental models of the future.

Scenario Strategies

Once the driving behaviors are identified and their relationships are understood, it is appropriate to begin to develop potential scenario strategies. To ensure that the scenario strategies that are constructed are not only valid but a compilation of the mental models of all the participants, a process should be used that enables varied mental models to surface. This process involves the utilization of a *scenario matrix*.

The matrix is divided into five entry columns and five entry rows, for a total of twenty-five matrix positions to be filled in. The rows give the participants the ability to articulate their mental models (the beliefs and assumptions that they believe will be congruent with each column heading); the systemic structures that they believe will be present for each column heading; the patterns of behavior that will be evident for each column heading; and the visible events that will be associated with each column heading. The columns reflect the potential scenario in question, the current reality, the gap between the potential future scenario and the current reality, the action steps identified to help move toward the future scenario, and the indicators of movement toward the future scenario.

The actual process of filling out the matrix is normally completed by individuals, most often by a cross-sectional group of institutional stakeholders. This group could include students, administrators, faculty, and support staff. There is no set way to complete the matrix. Some groups begin horizontally, some begin vertically – the only requirement is that the matrix reflect the vision of the person filling it out.

Once the group has completed filling out their individual matrices, they would begin to build a "collective" matrix; a matrix that reflects the collective vision of the group members. This process can be quite time consuming, depending on the alignment among the group members and the ability of the group to function as team.

It is important when developing the collective matrix to identify the target format for each matrix position. The columns for potential scenario and current reality

are most suited for sentence structure text, while the columns for gap, action steps, and indicators are best suited for bulleted items.

The purpose for using the matrix is two-fold. First, the matrix helps to build alignment on the planning team by creating a common knowledge base of what is and what can be. By completing the matrix and sharing the inputs, the team can develop a collective view of the future that is based on the individual perspectives of the group. Second, completing the matrix forces people to deal with three levels of knowledge. These levels are: 1) things we know we know, 2) things we know we do not know, and 3) things we do not know we do not know (Schoemaker, 1995). The object of using the matrix is not to validate or invalidate any specific future, but to think through the implications of that future (Senge, 1995).

Upon completion of the "collective" matrix, the scenario team would then repeat the process for the other scenarios identified by the orthogonal axes. This process is not a quick one. It may take months to weave the way through the existing mental models and formulate individual and collective new models for examination.

During this process, two concerns usually come up. First, a concern about the time, and, therefore, the cost, involved. Second, a concern about the relevance of the outcomes. There are no right answers for these concerns. However, when faced with similar concerns in the 1970's when presenting potential scenarios relating to what could happen to the availability of the world's oil supply, Pierre Wack responded, we "need to weigh the probability against the seriousness of the consequence -- if it happens, and you are not prepared for it." As we all remember, the seriousness of the consequence in that scenario was extremely high. In higher education, we are faced with future potentials that could have the same level of seriousness of consequence for our institutions if we do not begin to look at our mental models of the future.

Scenario planning is many things. However, it will not give higher education answers. It will not enable us to make better predictions. Scenario planning will give us the opportuntity to explore and, perhaps, expand our mental models of what the future could be, and what we can do as it approaches.

Scenario planning is about understanding the futures that might happen (Malone, 1995). Scenario planning will provide the opportunity to ask the questions that will need to be asked if we are to become better at planning for our future.

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